ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

January 3, 1961
Vol.24...No. 11

Dear Sir:

Third French nuclear device was detonated last fortnight in that country's testing ground in the Sahara desert. Described as "essentially a physics experiment", the work was part of the French study of the phenomena of nuclear explosions being carried on by the Commission a L'Energie Atomique.

Special 4% stock dividend on the firm's common stock has been declared by Victoreen Instrument Co., Cleveland, pioneer manufacturer of radiation measuring devices and electronic products. The dividend is payable Jan. 16, 1961 to stockholders of record Dec. 30, 1960.....Some 18,183 shares of Radiation Applications, Inc., have been added to holdings of Schenley Industries giving Schenley a 36% interest in the company. Hayden, Stone & Co., investment bankers, have bought 12,122 shares and Payson & Trask have a 6% interest. Radiation Applications does irradiation treatment of materials and develops items for the electronics and missile industries. (Other FINANCIAL NEWS, p.5 this LETTER.)

Atomic power equipment department of General Electric Co., San Jose, Calif., has expanded and centralized its chemical and metallurgical laboratory in a $100,000 program. The expansion included addition of an advanced direct emission spectrometer which permits simple analysis of uranium isotopes to within 1% of value. First of its kind to be built, the instrument is said to be almost as accurate as more expensive and complicated multiple mass spectrometers which are also used for this type of work. Another major piece of new equipment is an x-ray unit which may be used to measure the amount of rare earth elements contained as impurities or additives in nuclear materials. Major work of the laboratory is in the area of analysis of uranium fuel, fuel cladding material and reactor components. (Other MANUFACTURERS' NEWS, p.2 this LETTER.)

Initial shipment has been made by Babcock & Wilcox of some $9 million worth of nuclear fuel elements for the reactors of the N.S. Savannah. In all, 36 fuel elements will be sent from B & W's Lynchburg, Va., plant to the Camden, N.J., yard of New York Shipbuilding Corp., where the nuclear powered merchant vessel is nearing completion. Four of the elements will be spares, with 32 assembled as the reactor core. (Other BUSINESS NEWS, p.5 this LETTER.)

A suggestion that Oak Ridge National Laboratory might begin to consider "areas of endeavor outside the atomic energy field" was made by Alvin M. Weinberg, laboratory director, in his annual "state of the laboratory" speech. Dr. Weinberg stressed that this should not divert the laboratory from its primary job which is development of a truly long-term solution of mankind's energy problem. He hoped this would be accomplished by development of economical breeder reactors or by solution of the problem of controlled thermonuclear fusion. He noted that homogeneous reactor experiment no. 2 is now operating at 2.6 megawatts with its flow reversed. This reactor is aimed at nuclear breeding; evidence seems to suggest that the reversal of flow has greatly improved the performance of the reactor, he stated.

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NEW PRODUCTS, PROCESSES, INSTRUMENTS...

NEW PRODUCTS: Wide range survey meter which operates in radiation fields from 5 mr to 300 r/hr, has transistor circuitry said to be able to function in temperatures from minus 22 deg. F. to 125 deg. F. with an absolute accuracy of 15%. Two Geiger tubes are used in the circuit; the instrument has an effective energy range of 0.075 - 2 mev. Neon lamp indicates condition of the two flashlight batteries (which are said to provide 50 hours of operation) and a scale illuminator is built in for night use. --Gelman Instrument Co., Chelsea, Michigan.

Negative ion generator, trade-named Ionaire, produces negative particles by weak beta emission from tritium sealed in titanium foil. The device, offered for therapeutic purposes, is said to provide uninterrupted service for periods "well in excess" of 15 years. --United States Radium Corp., Morristown, N.J.

Model 4001 is complete nuclear training system with experiments specifically written for use with the instruments. It includes a scaler, timer, Geiger tube and mount, two sample preparation sets, a solid radioactive source set and $150 worth of radioactive reagents. Supplied with the system is a 187-page laboratory manual describing 33 radioisotope experiments for undergraduate students in general chemistry, qualitative and quantitative analysis, organic and physical chemistry, instrumental analysis and biochemistry. --Nuclear-Chicago Corp., Des Plaines, Ill.

PRODUCT NEWS: Total shipments during 1959 of key atomic energy products manufactured commercially in the U.S. totaled $244,900,000 according to the so-called "current" industrial reports of the Bureau of the Census. This was an increase of about 50% over the value of 1958 shipments. The 1959 shipments included $20.0 million of primary vessels and tanks; $27.2 million of heat exchanges and condensers; $19.5 million of pumps; $14.0 million of valves; $54.8 million of complete reactor fuel elements and control rods shipped directly for installation or use in reactors; and $16.4 million of radiation counting equipment. The totals include receipts for commercial irradiation service and for conversion of enriched uranium. Also included were shipments of nuclear reactors; control rod drive mechanisms and components; instruments for reactor control; pressurizers, components, and auxiliary equipment; fuel handling equipment; core structures; hot laboratory equipment; shielding, radioisotopes; radiation sources; control and measuring devices using radioisotopes; and specialized reactor components and equipment.

Detergent composition designed to remove radioactive contamination from hard surfaces such as metals, textiles, etc., is being manufactured and sold in the U.K. by Standard Chemical Co., Cheadle, Cheshire. Developed and used by the U.K. Atomic Energy Authority, license has been granted Standard Chemical for its manufacture and sale. The company offers it as a white granular free-flowing powder.

MANUFACTURERS' NEWS: License is being issued by the USAEC to Ohio State University for the 10 kw pool type reactor designed and constructed for the University by Lockheed Aircraft Corp.'s Georgia division. Some $280,422 has been granted Ohio State by the USAEC for use in the field of nuclear energy. Part of this amount was used to pay for the reactor. The Commission is also lending free of charge the highly enriched uranium fuel necessary for operation of the reactor.

Medical radioisotope instrumentation for the new medical center of Brazilia, recently constructed capital city of Brazil, will be supplied by Tracerlab, Inc., under order recently received by the Waltham, Mass., firm. Instrumentation for the Brazilian medical facility which Tracerlab will furnish will include electronic isotope apparatus for automatic analysis of medical and biological specimens and an isotope scanning system for locating tumors or malfunctioning organs without surgery. Part of the equipment supplied will be a system for the analysis of coronary blood flow to detect coronary perclusions and occlusions.

MEDICAL NOTES: Use of bone marrow implantation may extend the range of radiation therapy for cancerous growths, the work of Nathaniel B. Kurnick, of the Long Beach, Calif., Veterans Administration hospital has indicated. In the technique, a small sample of the patient's own bone marrow is removed from the body before radiation treatment, is frozen, and stored at low temperature. Following intensive irradiation, which damages marrow in the body and reduces its ability to produce blood cells, the stored marrow is returned to the patient's body. Dr. Kurnick found that blood count in some of the patients so treated returns to normal within two to four weeks. This is in contrast to months and years required for recovery of damaged bone marrow in patients who did not receive the marrow implants.

ATOMIC ENERGY PATENT & TRADE-MARK DIGEST...

PATENTS ISSUED December 20, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Method of beneficiating uranium ores by forming ferromagnetic uranium values and magnetically separating them. Russell M. Tripp, inventor. No. 2,965,440 assigned to Tripp Research Corp., Dallas, Texas. (2) Radiological examination of hollow articles. Emil A. Malick, inventor. No. 2,965,758 assigned to Phillips Petroleum Co. (3) Proportional counter. Howard C. Eberline, inventor. No. 2,965,759 assigned to Eberline Instrument Div., Reynolds Electrical & Engineering Co., Inc., Santa Fe, N.M. (4) Radiation measuring device. Jack G. Crump, inventor. No. 2,965,760 assigned to Industrial Nucleonics Corp. (5) Remote radiography camera. Lorand M. Horvath, inventor. No. 2,965,761 assigned to Canadian Curtiss-Wright, Ltd., Oakville, Ont., Canada. (6) Proportional counter. Robert T. Bayard, Allen G. McElroy, inventors. No. 2,965,780 assigned to Westinghouse Electric Corp., E. Pittsburgh, Pa.

PATENTS ISSUED December 20, 1960 to GOVERNMENTAL ORGANIZATIONS: (1) Neutron counter. Samuel B. Gunst, Robert T. Bayard, inventors. No. 2,965,781 assigned to USAEC. (2) Metal resistivity measuring device. Claus J. Renken, Ronald G. Myers, inventors. No. 2,965,840 assigned to USAEC.

PATENTS ISSUED December 27, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Hydrogen measurement. William H. Faulkner, Jr., Walter R. Ellis, inventors. No. 2,966,587 assigned to Tracerlab, Inc., Waltham, Mass. (2) Comparison spintharioscope. Sidney H. Liebson, William A. Loeb, Stephen B. Randolph, inventors. No. 2,966,589 assigned to Nuclear Development Corp. of America, White Plains, N.Y.

TRADE-MARKS ISSUED: Mark "Internuclear" (SN-97,663) will be issued Internuclear Co., Clayton, Mo., for scientific consulting services for various fields particularly for the field of nuclear and related technology.

NEW BOOKS & OTHER PUBLICATIONS...

Introduction to Nuclear Science. Alvin Glassner. Excellent elementary survey of nuclear science; based upon short intensive courses given at Argonne National Laboratory by staff members there for high school science teachers in the Summers of 1957, 1958 and 1959. Includes a series of 18 experiments using a minimum of equipment. 213-pages. --D. Van Nostrand Co., Princeton, N.J. ($3.75)

Microwave Gamma-Ray Ion Chamber. Work by Donald A. Brown, et al at Airborne Instruments Lab., Mineola, N.Y., during period May 1958 to Nov. 1959. No. PB-161,986. ($1.75).....Standardization of Fabrication Techniques for Neutron Detection Foils. Report of work by I. E. Lamb, R. R. Tsukimura at Aerojet-General Nucleonics, San Ramon, Calif., for period January 1958 - Sept. 1959. No. PB-161,982. ($2.50)..... Radioactive Fallout from Nuclear Explosions. Non-technical description by Edward N. Parker, Defense Atomic Support Agency, Wash., D.C. No. PB-161,970 ($1.00) --Office of Technical Services, Wash. 25, D.C.

Air and Concrete Scattering of Gamma Rays. Study by M. B. Wells, Convair, Fort Worth, Texas. No. PB-150,674.....Feasibility of Radiation Detection System for Space Travel. Preliminary design criteria by staff of Lockheed Aircraft Corp., Sunnyvale, Calif. (Microfilm $3.30; Photostat $7.80) No. PB-150,050.....Radiation Slide Rule for Atomic Fallout. Theory, construction and use by J. C. LeDoux, Naval Civil Engineering Lab., Port Hueneme, Calif. (Microfilm $2.70; Photostat $4.80) No. PB-148,660.....Background Radiation and the Effect of Shielding. Work by H. F. Perry, A. Pevsner, Johns Hopkins University, Baltimore, Md. (Microfilm, $2.40; Photostat $3.30) No. PB-149,360.....Effects of Massive Doses of High Dose Radiation on Monkeys. Investigations by John E. Pickering, Wright H. Langham, Walter A. Rambach, School of Aviation Medicine, Brooks AFB, Texas. (Microfilm $11.10; Photostat $62.10) No. PB-150,220. --Library of Congress, Wash. 25, D.C.

Notes: Source Material for Radiochemistry is 39-page booklet issued by National Research Council. It is publication 825, No. 27 in its nuclear science series reports. Publications covering radiochemical procedures; ion exchange, solvent extraction; activation analysis; nuclear geochemistry; counting techniques; and nuclear data compilations are listed. It may be obtained free of charge from National Research Council, Washington 25, D.C.

Discussion of the Wilzbach gas exposure method of tritium labeling, as presented at Fourth Annual Symposium on Advances in Tracer Methodology, Oct. 1960, is covered in issue No. 15 of Atomlight of New England Nuclear Corp., Boston, Mass.

ATOMIC ENERGY CONTRACT AWARDS...

Contract negotiations are now underway by the National Aeronautics and Space Administration with an industrial group for a study of the requirements for a national nuclear rocket engine development facility. The proposal selected for initial negotiations for the four months architectural and engineering study was submitted by Ralph M. Parsons Co. in association with Thiokol Chemical Corp. representing TALANT. TALANT is a group consisting of Thiokol; Allison Division of General Motors; Linde Company (division of Union Carbide); and Nuclear Development Corp. of America. The study will be under the direction of the USAEC-NASA nuclear propulsion office, the joint organization which handles development of nuclear propulsion systems for space vehicles. The Parsons-Thiokol proposal was one of 12 submitted. The study to be undertaken will furnish information to this office required for master planning of the new establishment. It will include data on site consideration; number of tests stands needed; control center; assembly and disassembly buildings; water and electrical power requirements; construction costs and schedules; etc.

Contract for the sterilization by irradiation of disposable hospital trays has been received by Radiation Dynamics, Inc., Westbury, L.I., from Hospital Supply & Development Co., Pittsburgh, Pa. The initial contract calls for the sterilization of 250,000 units. To handle this job, the company will use its 1.0 mev electron accelerator.

MEETINGS, COURSES, CONFERENCES...

SYMPOSIA: American Nuclear Society's north Texas section will sponsor symposium March 28-29, 1961 in Dallas, Texas. Purpose is to consider nuclear aspects of atmospheric and space systems for manned and/or un-manned space travel. Session topics will include reactors for flight propulsion; concepts of space nuclear power; radiation effects and damage in flight systems; shielding in nuclear propulsion; and nuclear safety in flight systems.

Symposium on the Detection and Use of Tritium in the Physical and Biological Sciences under sponsorship of International Atomic Energy Agency is scheduled for April 10-14, 1961 in Vienna, Austria. The first large international meeting in this field, participation by U.S. physicists and biologists is planned. Abstracts of papers for this symposium may be sent to Office of Special Projects, USAEC, Wash. 25, D.C.

CONFERENCES: Conference on Nuclear Electronics, also under IAEA sponsorship, planned for May 15-20, 1961 in Belgrade, Yugoslavia, will have U.S. participation as well. The program will include such subjects as radiation detectors, pulse techniques in classical and fast electronics, and radiation monitoring instruments. Abstracts of papers by U.S. participants may be sent before Feb. 1, 1961 to USAEC, as above.

RAW MATERIALS...prospecting, mining, marketing...

UNITED STATES: Bureau of Mines process which can upgrade beryllium ores may make recently optioned properties of Anaconda Co. an economic operation. The properties which Anaconda optioned recently--some 103 claims in the Mt. Washington district of Nevada--average only about 1% beryllium oxide, as compared with 10-12% in domestic ores. The Bureau of Mines flotation process is said to be capable of bringing them to a concentration of 20 to 22% with recoveries of about 80% possible.

CANADA: Stanrock Uranium Mines, in receivership, had operating profit of $1,096,363 in November, 1960 a slight decrease from its $1,172,965 earned in October, 1960. The company explained that the decrease was due to smaller tonnage handled, and also a slight decline in grade. A total of 180,057 lbs. of uranium oxide was recovered in November, down from October's 194,975-lbs., while 161,620-lbs. were shipped. Operating costs were reported at $873,354 or $9.24 per ton, compared with $868,976 or $8.73 in the previous month.

PEOPLE...in atomic energy work...

Charles H. Weaver, vice president of Westinghouse Electric Corp., has been elected president for 1961 of the Atomic Industrial Forum, Inc.

John F. Anderson has been named assistant to the general manager of Power Reactor Development Co., Detroit, Mich.

Chester C. Thompson has been appointed chief electronics engineer of Radiation Dynamics, Inc., Westbury, N.Y.

ATOMIC ENERGY BUSINESS NEWS...

NUCLEAR POWER STATION DEVELOPMENT REQUIRES MORE RESEARCH WORK, REPORT STATES: Report of the USAEC's advisory committee on reactor safeguards spells out further research required on the high-temperature gas-cooled nuclear reactor on which General Atomic division of General Dynamics Corp. is doing development work. The reactor is for the nuclear power plant of Philadelphia Electric Co. and associated utilities at Peach Bottom, Pa., and will use combined fuel-moderator elements containing enriched uranium and thorium carbide in an impervious graphite matrix. The advisory committee points out that the long-term integrity of the graphite under GA's proposed design conditions (which is far outside past experience with graphite) has yet to be established. It also notes that the experimental data required to determine that the fission products emitted continuously from the homogeneous fuel elements can be collected, stored and disposed of safely have yet to be developed. The novel design for the control rod system is not sufficiently advanced to permit evaluation of its reliability, the committee reports. Further, no secondary back-up safety system or emergency coolant system has been provided, and GA has not convinced the committee they are unnecessary. (Bechtel Corp., San Francisco, holds contract to construct the plant at Peach Bottom. Estimated total cost is $52,818,000 of which the USAEC will contribute a maximum of $17,000,000 for research and development and in waiver of fuel use charges.)

MORTGAGE REFINANCING SOUGHT FOR NUCLEAR PRODUCTS FIRM: American Research and Development Corp., Boston Investment company, and Tracerlab, Inc., Waltham, Mass. nuclear products firm, have asked the SEC for an exemption order to permit mortgage refinancing for the latter firm. Tracerlab holds a note of its subsidiary, Tracerlab Realty, Inc., secured by a second mortgage on the land and building occupied by Tracerlab in Waltham. American Research owns $81,195 of the $324,780 principal amount of the mortgage note, which was due Sept. 30, 1960. American Research has proposed to make a refunding loan to Tracerlab Realty, in the full amount of the second mortgage, which would extend its maturity to Sept. 30, 1966 and reduce annual interest from 6% to 5%. For this, American Research will get options to buy up to 25,000 additional shares of Tracerlab stock at option price of $11.48 per share (it now owns 88,459 shares). Tracerlab will realize about $243,580 as payment for its interest in the second mortgage note.

GAS CENTRIFUGE DEVELOPMENT PLANNED: Another intensive examination is underway by the USAEC of the gas centrifuge process for producing plutonium. As part of this new program, the Commission said it will invite private industry proposals to develop under government contract advanced models of the gas centrifuge. Meanwhile the Commission will continue its basic research in this field which has been underway at the University of Virginia. It will also continue its experimental operation of small groups of machines incorporating presently available technology. This work is being done for the Commission under contract by Union Carbide Nuclear Corp. at Oak Ridge, Tenn. Since the program is classified, the USAEC is amending its regulations governing "Permits for Restricted Data" (10 CFR 25) to give companies qualifying for participation in the centrifuge program access to Commission classified data on the subject. To build or operate a centrifuge plant, licenses would be required, regardless of the access permit. Stimulating action have been industry people who have told the Commission they believe there is substantial commercial potential use in providing fuels for nuclear reactors.

POWER REACTOR INFORMATION REQUESTED: The USAEC is asking for possible interest by cooperative and publicly owned utilities in participating in a nuclear power demonstration project incorporating a prototype 50,000 net electrical kw organic cooled and moderated reactor. Utilities have been asked to indicate a definite interest by Jan. 15, 1961; detailed proposals are not wanted now. The nuclear steam supply system including the reactor would be financed principally by the USAEC. The participating utility would be expected to provide as a minimum the site and conventional facilities; to operate the plant for five years as part of its distribution system; and to purchase the steam from the reactor. (The Commission has already undertaken the specific research and development needed for the project and will proceed with the design of the reactor concurrently with the invitation for expressions of interest.)

Sincerely,

The Staff
ATOMIC ENERGY NEWSLETTER

January 3, 1961